

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (cancel)

2-55 (previously cancelled)

56 (Currently Amended) A method of detecting coordinates based upon two groups of opposing pairs of light emitting elements and light detecting elements, the two groups being perpendicularly positioned along two directions and surrounding a two-dimensional coordinate input and detection area for accepting an input from a pointing means, a plurality of the light detecting elements being placed in a light emitting area of each of the light emitting elements to accept light emitted from each of the light emitting elements in an overlapping manner, comprising the steps of:

sequentially and individually activating the light emitting elements within a predetermined time interval;

determining whether or not the light is interrupted along directions between activated one of the light emitting elements and the light detecting elements in the corresponding light emitting area of the activated light emitting element;

calculating two-dimensional coordinates for the input from the pointing means based upon the positions of the activated light emitting element and one or more of the light detecting elements that have detected the interruption of the light in the corresponding light emitting area, which define the interrupted light detecting elements.

57 (previously presented) The method of detecting coordinates according to claim 56 wherein said calculating step further includes additional steps of:

determining a central detector position of one or more of the interrupted light detecting elements;

determining a minimal distance between the central detector position and one of the interrupted light detecting elements for each group of the light emitting elements and the light detecting elements; and

calculating two-dimensional coordinates for the input from the pointing means based upon the positional relation between the minimal distance and the central detector position.

58 (previously presented) The method of detecting coordinates according to claim 57 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and a discontinuously sequential activation mode for activating every Nth of the linearly placed light emitting elements, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

59 (previously presented) The method of detecting coordinates according to claim 56 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and a discontinuously sequential activation mode for activating every Nth of the linearly placed light emitting elements, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if it is determined that the input is

not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

60 (previously presented) The method of detecting coordinates according to claim 57 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and an alternate sequential activation mode for alternating the activation of every one of the linearly placed light emitting elements and every Nth of the linearly placed light emitting elements, the alternate sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

61 (previously presented) The method of detecting coordinates according to claim 56 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and an alternate sequential activation mode for alternating the activation of every one of the linearly placed light emitting elements and every Nth of the linearly placed light emitting elements, the alternate sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

62 (cancel)

63 (cancel)

64 (cancel)

65 (currently amended) A storage medium containing computer instructions for detecting coordinates based upon two groups of opposing pairs of light emitting elements and light detecting elements, the two groups being perpendicularly positioned along two directions and surrounding a two-dimensional coordinate input and detection area for accepting an input from a pointing means, a plurality of the light detecting elements being placed in a light emitting area of each of the light emitting elements to accept light emitted from each of the light emitting elements in an overlapping manner, the computer instructions performing the tasks of:

sequentially and individually activating the light emitting elements within a predetermined time interval;

determining whether or not the light is interrupted along directions between activated one of the light emitting elements and the light detecting elements in the corresponding light emitting area of the activated light emitting element;

calculating two-dimensional coordinates for the input from the pointing means based upon the positions of the activated light emitting element and one or more of the light detecting elements that have detected the interruption of the light in the corresponding light emitting area, which define the interrupted light detecting elements.

66 (previously presented) The storage medium containing computer instructions for detecting coordinates according to claim 65 wherein said calculating step further includes additional steps of:

determining a central detector position of one or more of the interrupted light detecting elements;

determining a minimal distance between the central detector position and one of the interrupted light detecting elements for each group of the light emitting elements and the light detecting elements; and

calculating two-dimensional coordinates for the input from the pointing means based upon the positional relation between the minimal distance and the central detector position.

67 (previously presented) The storage medium containing computer instructions for detecting coordinates according to claim 66 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and a discontinuously sequential activation mode for activating every Nth of the linearly placed light emitting elements, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

68 (previously presented) The storage medium containing computer instructions for detecting coordinates according to claim 65 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and a discontinuously sequential activation mode for activating every Nth of the linearly placed light emitting elements, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

69 (previously presented) The storage medium containing computer instructions for detecting coordinates according to claim 66 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and an alternate sequential activation mode for alternating the activation of every one of the linearly placed light emitting elements and every Nth of the linearly placed light emitting elements, the alternate sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

70 (previously presented) The storage medium containing computer instructions for detecting coordinates according to claim 65 wherein said sequentially and individually activating step includes a continuously sequential activation mode for activating every one of the linearly placed light emitting elements and an alternate sequential activation mode for alternating the activation of every one of the linearly placed light emitting elements and every Nth of the linearly placed light emitting elements, the alternate sequential activation mode being switched to the continuously sequential activation mode if it is determined that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if it is determined that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

71 (cancel)

72 (cancel)

73 (cancel)

74 (currently amended) A system for detecting coordinates based upon two groups of opposing pairs of light emitting elements and light detecting elements, the two groups being perpendicularly positioned along two directions and surrounding a two-dimensional coordinate input and detection area for accepting an input from a pointing means, a plurality of the light detecting elements being placed in a light emitting area of each of the light emitting elements to accept light emitted from each of the light emitting elements in an overlapping manner, comprising:

a light emitting control for sequentially and individually activating the light emitting elements within a predetermined time interval;

an interruption determination unit connected to said light emitting control for determining whether or not the light is interrupted along directions between activated one of the light emitting elements and the light detecting elements in the corresponding light emitting area of the activated light emitting element;

a coordinate calculation unit connected to said determination unit for calculating two-dimensional coordinates for the input from the pointing means based upon the positions of the activated light emitting element and one or more of the light detecting elements that have detected the interruption of the light in the corresponding light emitting area, which define the interrupted light detecting elements.

75 (previously presented) The system for detecting coordinates according to claim 74 wherein said coordinate calculation unit further comprises:

a central position determination unit for determining a central detector position of one or more of the interrupted light detecting elements;

a minimal distance determination unit connected to said central position determination unit for determining a minimal distance between the central detector position and one of the

interrupted light detecting elements for each group of the light emitting elements and the light detecting elements; and

a calculation unit connected to said minimal distance determination unit for calculating two-dimensional coordinates for the input from the pointing means based upon the positional relation between the minimal distance and the central detector position.

76 (previously presented) The system for detecting coordinates according to claim 75 wherein said light emitting control activates every one of the linearly placed light emitting elements in a continuously sequential activation mode and every Nth of the linearly placed light emitting elements in a discontinuously sequential activation mode, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if said interruption determination unit determines that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if said interruption determination unit determines that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

77 (previously presented) The system for detecting coordinates according to claim 74 wherein said light emitting control activates every one of the linearly placed light emitting elements in a continuously sequential activation mode and every Nth of the linearly placed light emitting elements in a discontinuously sequential activation mode, the discontinuously sequential activation mode being switched to the continuously sequential activation mode if said interruption determination unit determines that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the discontinuously sequential activation mode, the continuously sequential activation mode being switched to the discontinuously sequential activation mode if said interruption determination unit determines that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

78 (previously presented) The system for detecting coordinates according to claim 75 wherein said light emitting control activates every one of the linearly placed light emitting elements in a continuously sequential activation mode and every Nth or every one of the linearly placed light emitting elements in an alternate sequential activation mode, the alternate sequential activation mode being switched to the continuously sequential activation mode if said interruption determination unit determines that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the alternate sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if said interruption determination unit determines that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

79 (previously presented) The system for detecting coordinates according to claim 74 wherein said light emitting control activates every one of the linearly placed light emitting elements in a continuously sequential activation mode and every Nth or every one of the linearly placed light emitting elements in an alternate sequential activation mode, the alternate sequential activation mode being switched to the continuously sequential activation mode if said interruption determination unit determines that the input is placed in the coordinate input and detection area while the light emitting elements are activated in the alternate sequential activation mode, the continuously sequential activation mode being switched to the alternate sequential activation mode if said interruption determination unit determines that the input is not placed in the coordinate input and detection area while the light emitting elements are activated in the continuously sequential activation mode.

80 (cancel)

81 (cancel)

82 (cancel)